Characteristics of the Lobster Fishery on the Oceanic Coast of Nova Scotia

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CONTENTS

Abstract/Résumé iv

Introduction 1

Methods and background 1

Results 2

Discussion 3

Conclusions 4

Recommendations. 4

Acknowledgements 4

References 5

Appendix 1: Interview questionnaire 23

Appendix 2: Tables of characteristics of Category "B" licensed fishermen.. 27

ABSTRACT

Duggan, R.E. 1985. Characteristics of the lobster fishery on the oceanic coast of Nova Scotia. Can. MS Rep. Fish. Aquat. Sci. 1883: v + 37 p.

Fifteen percent of licensed lobster fishermen on Nova Scotia's oceanic coast [Lobster Fishing Districts (LFD) 4B-6B] were interviewed by Department of Fisheries and Oceans personnel during February and March of 1983. Responses to a questionnaire provided detailed information on characteristics of the fishery in 1982 such as vessel length, age, and construction, on-board equipment and accessories, fishing gear, fishing experience, fishing effort, manpower, and bait for each LFD in the study area.

Average lengths of boats ranged from 7.7 m to 9.1 m and over 85% were constructed of wood. License holders had been fishing 23.9 to 34.7 yr on average, and only a small number employed a helper. Traps were exclusively of wood construction with over 85% being three bow types with two entrance rings. The species most preferred for bait was mackerel. The average area of bottom fished per fishermen varied from 13.8 km^2 to 40.4 km^2.

This report may serve as an important baseline for future comparisons because landings throughout the majority of the study area (LFD's 4B, 5A, 5B, 6A, and 7A) bottomed out in 1980. Fishing effort was also extremely low at that time. In response to slight increases in landings in 1981 and 1982 fishermen began building new traps "for the first time in years." Indications were that effort was going to be increased, and lobster landings have increased steadily each year since the study was completed.

RÉSUMÉ

Duggan, R.E. 1985. Characteristics of the lobster fishery on the oceanic coast of Nova Scotia. Can. MS Rep. Fish. Aquat. Sci. 1883: v + 37 p.

Quinze pourcent des pêcheurs licenciés sur la côte océanique de la Nouvelle-Ecosse (districts de pêche aux homards [DPH] 4B-6B) ont été interviewés par le personnel du département des pêches et océans durant février et mars de 1983. Les réponses à un questionnaire ont fourni de l'information détaillée sur des caractéristiques de cette pêche en 1982 tel que longueur, âge et construction des vaisseaux, l'équipement et les accessoires à bord, l'équipement de pêche, l'expérience de pêche, l'effort de pêche, la main-d'oeuvre, et l'appât pour chaque DPH dans la région d'étude.

Les longueurs moyennes des bateaux variaient entre 7,7 m et 9,1 m et plus de 85% étaient construits de bois. Les détenteurs de licence avaient pêchés 23,9 à 34,7 années en moyenne et seulement un petit nombre employait un assistant. Les casiers étaient exclusivement de construction de bois avec plus de 85% étant du type à trois arcs avec 2 anneaux d'entrées. L'espèce préférée comme appât était le maquereau. La superficie moyenne de fond pêché par une pêcheur variait de 13,8 km^2 à 40,4 km^2.

Ce rapport pourrait servir comme ligne de base importante pour des comparaisons futures car les débarquements à travers la majorité de la région d'étude (DPH 4B, 5A, 5B, 6A et 7A) se sont effondrés en 1980. L'effort de pêche était aussi extremêment bas à ce temps-là. En réponse à de faibles augmentations dans les débarquements en 1981 et 1982, les pêcheurs ont commencé à construire de nouveaux casiers "pour la première fois depuis des années". Les indications étaient que l'effort était pour augmenter et les débarquements de homards ont augmenté régulièrement chaque année depuis que l'étude a été complètée.

INTRODUCTION

The lobster fishery in Eastern Canada is one of the country's oldest, continuously managed fishery. The first regulation was applied in 1873 (DeWolf 1974). The lobster fishery has consistently provided the highest dollar value of all species landed in the Maritimes, and there has been a continuous concern to develop techniques to obtain data for its assessment and management (Anthony and Caddy 1980). Recently attempts to determine fishing patterns and effort distribution have involved the use of indirect techniques such as remote sensing (Conan and Maynard 1983; Pringle and Duggan 1983).

Fishermen interviews is another technique previously used to examine specific aspects of the lobster fishery (DeWolf 1974; Rutherford et al. 1967; Wakeham 1909). To provide a broad, overall view of the lobster fishery along the oceanic coast of Nova Scotia, Fisheries and Oceans personnel adopted this technique in the late winter of 1983. Fifteen percent of all fishermen in this area to whom lobster licenses were issued in 1982 were personally interviewed. Data from this survey have been used to estimate levels of latent effort (Pringle and Duggan 1984) and to estimate yield per unit of area of fishing ground (Pringle and Duggan 1985). The purpose of this report is to provide a description of characteristics of the lobster fishery in 1982 throughout the study area which includes the major portion of Lobster Fishing Districts (LFD) 4B and LFD's 5A, 5B, 6A, 6B, and 7A, (Fig. 1).

METHODS AND BACKGROUND

Interview methodology was as reported in Pringle and Duggan 1984. Interviews were either conducted by, or supervised by, the author, who has worked as a liaison with fishermen for the past 10 yr. An assistant, trained by the author, was also employed. Interviews were carried out during March and April 1983 (see Fig. 1 for interview locations). In most cases interviews took place in the fisherman's residence, on a one-to-one basis. Questions (Appendix 1) were verbally presented, and answers were recorded in writing by the interviewer.

The bulk of the data have been presented as percentages and means. Where statistical analyses were performed the data were first tested for normal distribution using the Komolgorov-Smirnov goodness of fit test. Further analyses used "one way" and "frequencies" programs (Nie et al. 1975). Each characteristic has been separately described for "A" and "B" category licensed fishermen.

A Category "A" lobster license, issued annually, is available to full-time fishermen who derive the major portion of their income from fishing. A Category "B" license, also issued annually, does not require full-time participation in the fishery and allows the holder to fish one-third the number of traps of an "A" license. Because "B" licensed fishermen constitute such a small portion of the license holders and

consequently the sample, these data are presented for reference only in Appendix 2 and are not discussed in the paper.

RESULTS

The interviewers, in all instances, were cordially received in the fishermen's homes. Interviewees encouraged conversation and frequently offered refreshments. Overall, they appeared to be interested in the future of their fishery and were concerned about resource management and conservation. The interviewers felt in most cases that accurate information was provided. It appeared in several instances, however, that the reported number of traps actually being fished was exaggerated. This was probably due to a misconception that licenses might be downgraded or revoked for not utilizing maximum trap limits. However, the amount was not large enough to adversely affect results and was recorded as reported.

Characteristics of boats used by "A" licensed fishermen are presented in Table 1. The most frequently used construction material was wood. Percentages of wooden boats ranged from 100% in LFD's 5A and 7A to 85.7% in LFD 6A. LFD 6A had the highest percentage of fibreglass-constructed vessels, at 14.3%. Mean age of lobster boats ranged from 6.7 yr in LFD 6A to 14.0 yr in LFD 7A. Mean overall lengths of boats ranged from 7.7 m to 9.1 m in LFD's 5B and 6A respectively. There was no significant difference (P=0.05) between LFD's in either age or length of boats.

Only 4.7% of "A" licensed boats lacked motorized propulsion. Inboard gasoline engines were the most prevalent, ranging from 57.2% in LFD 4B to 85.7% in LFD 6A. The maximum incidence of boats powered by gasoline outboards (31.0%) occurred in LFD 5B. LFD 5A had the highest percentage of inboard diesel engines at 21.1%.

Data on vessel accessories for "A" licensed vessels is given in Table 2. The percentage of fishermen who still haul traps manually ranged from 0.0% in LFD 6A to 22.2% in LFD 4B. In most LFD's the majority of lobster boats (maximum 85.7% in LFD 6A) were equipped with hydraulically powered trap haulers. Exceptions were LFD 5B and LFD 7A which had only 31.0% and 33.0% respectively of vessels so equipped. The remainder of the boats were equipped with mechanically driven trap haulers. The number of boats equipped with depth sounders varied from 22.2% in LFD 7A to 62.1% in LFD 5B. Frequencies of vessels equipped with navigational accessories such as radar and Loran C ranged from 0.0% for both accessories in LFD 7A to maximums of 47.6% with radar and 20.6% with Loran C in LFD 4B. Frequency of two-way radios by type is also recorded. In all districts over 50% of the boats had some type of radio, mostly citizens band. The highest occurrence of VHF radios (14.3% of boats) was in LFD 4B.

Table 3 presents information on fishing experience and items related to fishing effort. The mean number of fisherman years/fisherman varied from 23.9 to 34.7 in LFD's 5A and 7A respectively. Mean numbers of traps actually fished were, in all districts, less than the maximum amount legally allowed. Where a limit of 250 traps existed, the mean amount used ranged from 146.9 in LFD 4B to 203.6 in LFD 6A. In LFD's 6B and 7A where the trap limit is 275, mean numbers of traps fished were 203.5 and 177.8 respectively. In LFD 4B

where the lobster fishery is pursued in both spring and fall the mean number of days fished in spring (25.3) was considerably less than other districts, which ranged from 32.5 in LFD 5B to 41.5 in LFD 5A. Mean minimum depths in which lobster traps were set are similar for all LFD's; however, mean maximum depths varied from 21.3 m/11.7 fm (LFD 7A) to 38.5 m/21.1 fm (LFD 4B). The number of fishermen employing helpers varied from a high of 60% in LFD 6B to a low of 8.3% in the continguous LFD 6A. High and low values for average amount of bottom fished per fisherman were 15.8 mi^2/40.4 km^2 (LFD 5B) and 5.4 mi^2/13.8 km^2 (LFD 7A).

Details of lobster trap dimensions and construction are presented in Table 4. Although large four-bow traps and traps constructed entirely of wire mesh are becoming more prevalent in LFD 4A, 90% of the traps in the area were three-bow wooden traps with knitted twine heads. The bulk of the traps had only two entrance rings. Though minor variations occurred in overall dimensions throughout the area, there was no significant difference ($P=0.05$) between districts. Mean spacing of trap laths varied from 24.9 mm in LFD 7A to 32.9 mm in LFD 4B. Again there was no significant difference between LFD's ($P=0.05$). A significant difference ($P\leq.05$) (Fig. 2) in entrance ring diameter was noted between LFD 6B and LFD's 5B and 7A. Diameters ranged from mean values of 12.4 cm in LFD 6B to 14.2 cm in LFD 7A.

Information on lobster bait is presented in Table 5. The species most preferred throughout the study area was mackerel; however, lack of supply and high price often prevented its use. Second and third preferences were either herring or other unspecified species. Varying amounts of salted or fresh bait or both types in combination were utilized. Fishermen in all areas attempt to catch their own bait. The average amount of lobster bait caught by fishermen ranged from 34.0% to 71.9% in LFD's 5B and 4B respectively.

DISCUSSION

Coincidental with the timing of this study were several factors contributing to the importance of this report to future studies. First, except for LFD 6B which had recently experienced all-time high lobster landings, landings in other LFD's in the study area had reached all-time low levels (Figs. 3-7). The first indication of a reversal of this trend began in 1980 and 1981. Secondly, although fishermen, encouraged by the recent upturn in landings, were planning to increase effort, levels of fishing effort were the lowest experienced for many years (see Pringle and Duggan 1984 for estimates of latent effort). This was in part due to a lobster license buy-back program which, on average, removed 33.5% of licenses within the study area excluding LFD 6B. Thirdly, the Licensing Unit, Fisheries Operations Branch, of Fisheries and Oceans had undergone a major revision, making 1982 records the most accurate to date. Considering these factors, this study provides a comprehensive data base on the fishery at a time when effort was low and landings had bottomed out.

It is interesting to compare the quality of vessels and equipment between LFD's 6A, 6B, and 7A. LFD 6A is located between LFD 6B and 7A. Landings in LFD 6B have been reasonably stable (recently reaching all-time high levels) where in LFD's 6A and 7A landings had reached all-time lows. LFD 6A vessels and equipment, however, are equal to or superior to those

found in LFD 6B, while those in LFD 7A are the oldest and least well equipped in the study area. It has been suggested that this may be due to LFD 6A fishermen's success in other fisheries. With regard to the lobster fishery, trap density per square kilometer in LFD 6A was only 30, compared to 55 in LFD 7A and 115 in LFD 6B (Pringle and Duggan 1985). The same study also gave details on yield of lobsters per square kilometer, catch per unit of effort, and average area of lobster bottom per fisherman. CPUE in LFD 6B was 0.22 kg, only slightly larger than LFD 6A (0.17). The average area of lobster bottom per fisherman in LFD 6B was only 1.9 km^2; however, yield per square kilometer was 1,250 kg, six times that of LFD's 6A and 7A (207 kg). The area of lobster bottom per fisherman in LFD 6A and LFD 7A was 6.2 km^2 and 3.0 km^2 respectively. LFD 7A CPUE was only 0.10 kg, slightly more than one-half that of LFD 6A. It appears that the larger amount of grounds and the higher CPUE enabled LFD 6A fishermen to fish economically during periods of low landings and to maintain and modernize their gear at a superior level to LFD 7A fishermen.

CONCLUSIONS

1. The bulk of the lobster boats were built from wood and had inboard gasoline engines. There were no significant differences between LFD's in either length or age of boats.

2. In all LFD's the number of traps used was less than the maximum legal number.

3. The majority of fishermen had held lobster licenses for over 20 yr, and few employed full-time helpers.

4. Lobster traps were similarly constructed in all LFD's. Over 90% had had a three-bow wood frame. Entrance ring diameter was the only characteristic for which a significant difference between LFD's was noted; LFD 6B was significantly smaller than LFD's 5B and 7A.

5. The majority of fishermen used a combination of fresh and salt bait consisting of a number of species; the species most preferred was mackerel. Fishermen generally try to catch their own bait, but in all cases a portion of their total requirement had to be purchased.

RECOMMENDATIONS

During preparation of this report the decline in landings reversed and has continued to increase. Fishermen were building new traps and buying new equipment. A subsequent similar study should be undertaken to determine changes in the characteristics examined in this report with particular reference to fishing power and fishing effort.

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Table 1. Lobster vessel construction material, mean age, mean length, and engine type for "A" licensed fishermen by LFD.

Lobster district	Vessel construction material (%)			$\bar{X}$ age of boats (yr)	$\bar{X}$ length of boats (m/ft.)	Engine type by %			
	Wood	Fibreglass	Aluminum			None	Gas inboard	Diesel inboard	Gas outboard
4B	88.9	11.1	0	10.9	8.9/29.5	4.8	57.2	19.0	19.0
5A	94.7	5.3	0	10.7	8.8/29.1	0	78.9	21.0	0
5B	100	0	0	11.9	7.7/25.3	0	65.5	3.5	31.0
6A	85.7	14.3	0	6.7	9.1/30.0	0	85.7	14.3	0
6B	90.3	7.8	1.9	7.6	8.8/29.1	0	77.3	12.1	10.6
7A	100	0	0	14.0	7.9/25.8	0	77.8	11.1	11.1

Table 2. Percentage of lobster boats equipped with accessories by type or combinations of types for "A" licensed fishermen by LFD.

Lobster district	Trap hauler (% by type)			% of Boats equipped with depth sounder	% of Boats equipped with radar	% of Boats equipped with Loran C	Boats equipped with radio (% by type)		
	Hand	Mechanical[1]	Hydraulic[2]				C.B.	V.H.F.	Both
4B	22.2	23.8	54.0	55.6	47.6	20.6	39.7	14.3	12.7
5A	5.2	31.6	63.2	57.9	21.1	15.8	78.9	10.5	0
5B	20.7	48.3	31.0	62.1	27.6	0	62.1	3.4	3.4
6A	0	14.3	85.7	57.1	14.3	14.3	85.7	0	0
6B	7.6	12.1	80.3	57.6	25.8	15.2	66.7	1.5	13.6
7A	11.1	55.6	33.3	22.2	0	0	44.4	0	11.1

[1]Usually home made, constructed from automobile differential and axle, shaft driven from V-belt pulley on main engine.
[2]Hydraulic pump driven by boat engine to hydraulic motor mounted directly on disc or capstan.

Table 3. Fishing experience and effort-related items for "A" licensed fishermen by LFD.

Lobster district	$\bar{X}$ # years fishing lobster	$\bar{X}$ # traps fished/limit	$\bar{X}$ # days fished (Spring)	$\bar{X}$ # days fished (Fall)	$\bar{X}$ # helpers (Spring)	$\bar{X}$ # helpers (Fall)	$\bar{X}$ fishing Area[1] (mi^2/km^2)	$\bar{X}$ range of fishing depths (fm/m)	
								Min.	Max.
4B	27.3	146.9/250	25.3	15.2	0.29	0.4	9.5/24.3	3.1/5.6	21.[illegible]8.5
5A[2]	23.9	189.2/250	37.8		0.31		8.7/22.2	2.2/4.0	15.7/28.7
5B[2]	28.8	192.8/250	32.5		0.31		15.8/40.4	2.1/3.8	15.5/28.3
6A[2]	24.9	203.6/250	41.0		0.14		8.3/21.2	5.0/9.0	13.3/24.3
6B[2]	24.1	239.5/275	39.0		0.60		12.7/32.5	2.9/-	17.3/31.6
7A[2]	34.7	177.8/275	38.7		0.40		5.4/13.8	3.8/6.9	11.7/21.4

[1]Fishing area is calculated from maximum distances travelled east, west, and offshore from home port to tend gear.
[2]There is no fall season in these districts.

Table 4. Lobster trap construction parameters for "A" licensed fishermen by LFD.

Lobster district	% of fishermen using twine or wire and twine with wood in trap construction		% of Fishermen using 3, 4, or combination of 3 & 4 bow traps			% of fishermen using traps with 1, 2, 3, or combination of 2 & 3 entrance rings				X trap dimensions (cm)			X opening 1st lath space (mm)	X diameter of entrance rings
	Twine	Wire and twine	3	4	3 & 4	1	2	3	2 & 3	L	W	H		
4B	93.7	6.3	88.9	6.3	4.8	0	92.1	3.2	4.7	87.5	68.3	37.9	32.9	13.2
5A	94.7	5.3	100.0	-	-	10.5	89.5	0	0	87.5	64.7	37.1	29.1	13.3
5B	96.4	3.6	100.0	-	-	3.4	96.6	0	0	82.8	64.0	41.0	31.0	13.9
6A	83.3	16.7	100.0	-	-	0	100.0	0	0	84.7	63.8	38.6	31.4	12.5
6B	92.4	7.6	89.3	1.5	9.2	1.5	98.5	0	0	79.9	62.4	37.6	30.2	12.4
7A	100.0	0.0	100.0			0	100.0	0	0	84.6	67.1	40.9	24.9	14.2

Table 5. Information on bait for "A" licensed fishermen.

Lobster district	Order of species preference	% of fishermen using bait types						$\bar{X}$ % of total caught
		Spring			Fall			
		Salt	Fresh	Both	Salt	Fresh	Both	
4B	[1]Mackerel [2]Other [3]Flatfish	18.3	40.0	41.7	27.1	23.7	44.1	71.9
5A*	[1]Mackerel [2]Other [3]Herring	21.1	36.8	42.1	-	-	-	51.3
5B*	[1]Mackerel [2]Herring [3]Other	6.9	58.6	34.5	-	-	-	34.0
6A*	[1]Mackerel [2]Other [3]Other	28.6	0.	71.4	-	-	-	44.3
6B*	[1]Mackerel [2]Herring [3]Other	12.2	33.3	54.5	-	-	-	47.6
7A*	[1]Other [2]Herring [3]Mackerel	11.1	33.3	55.6	-	-	-	61.1

*There is no fall season in these districts.

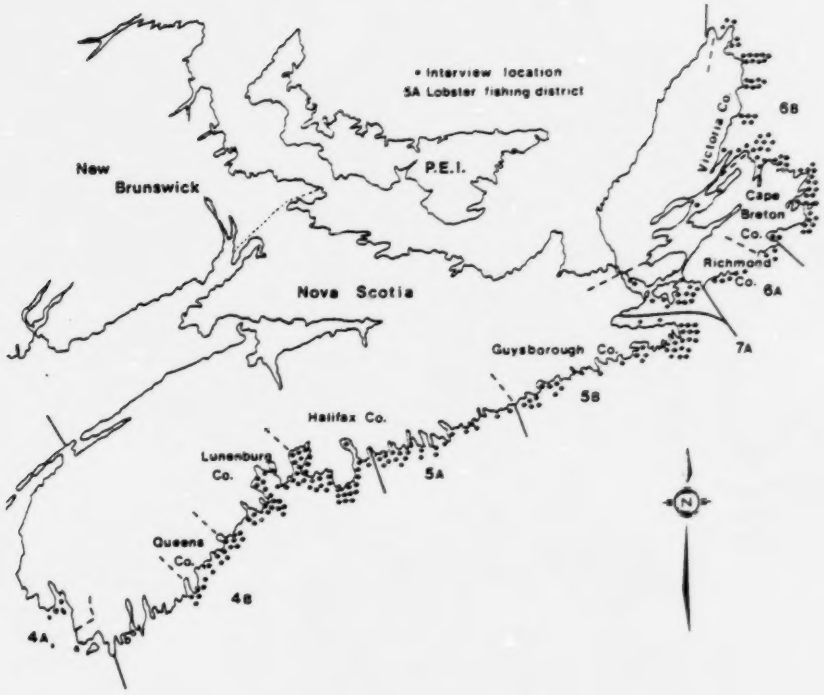

Fig. 1. Lobster fishing districts and distribution of interview locations.

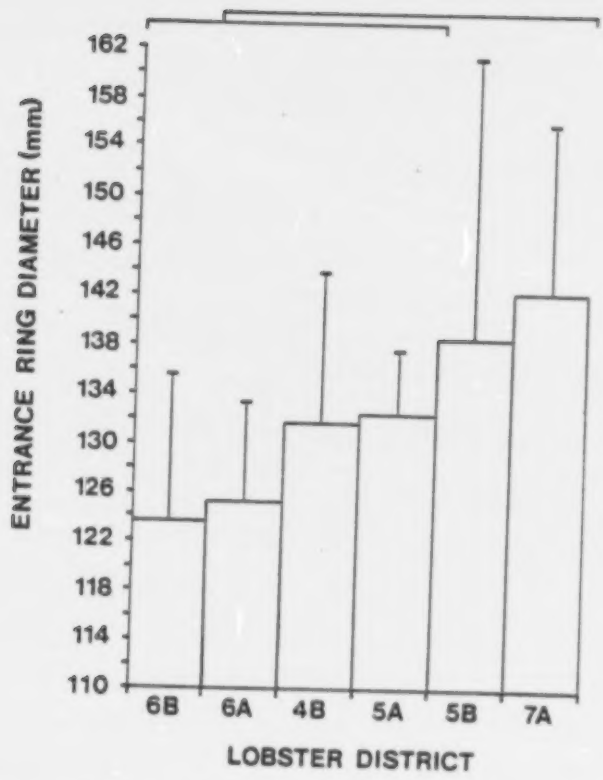

Fig. 2. $\bar{x}$ diameters of lobster trap entrance rings for Lobster Fishing Districts 4B through 7A.

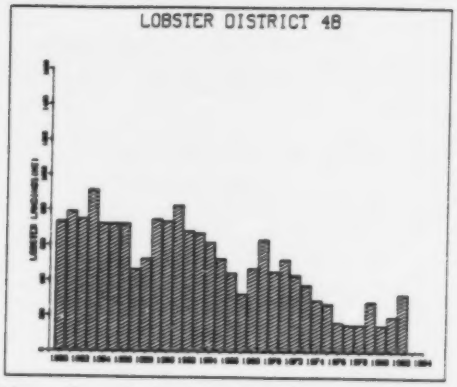

Fig. 3. Lobster landings (t) (1950-1982) for Lobster District 4B.*

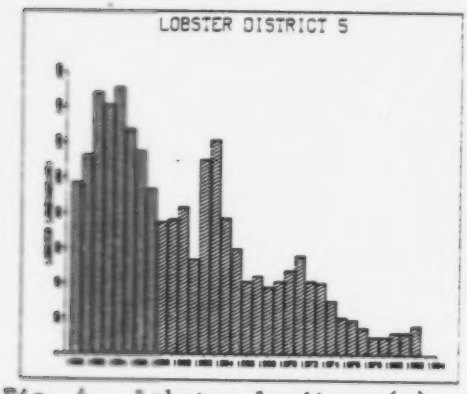

Fig. 4. Lobster landings (t) (1950-1982) for Lobster District 5.

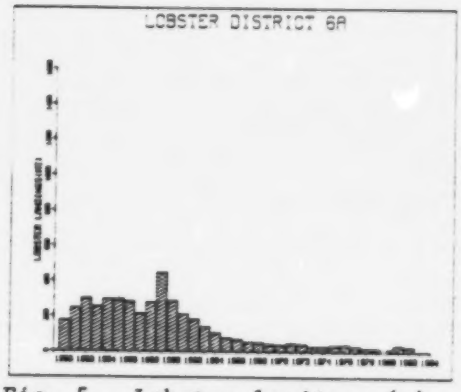

Fig. 5. Lobster landings (t) (1950-1982) for Lobster District 7A.

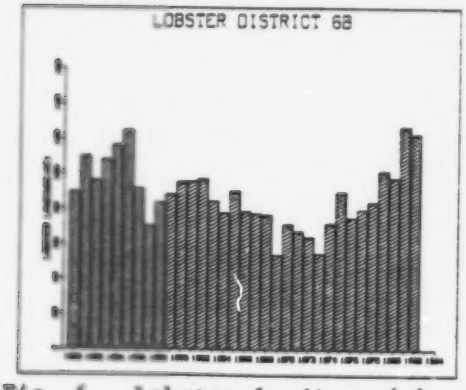

Fig. 6. Lobster landings (t) (1950-1982) for Lobster District 6A.

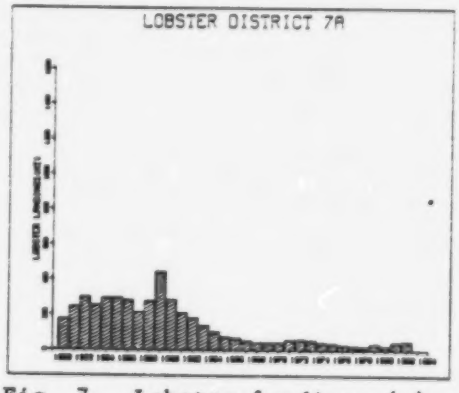

Fig. 7. Lobster landings (t) (1950-1982) for Lobster District 6B.

*Excludes Shelburne Co. portion of Lobster District 4B. Statistical District 18 was a part of Statistical District 20 until 1956. Landings from Statistical District 18 from 1950 to 1956 are estimated as that percentage of Statistical Districts 20 and 19 landings comprised by Statistical District 18 from 1957 to 1982.

APPENDIX I:

Interview questionnaire

Appendix I. Questions asked interviewees.

Port - Coded by Stat. District and name.
Lobster District - Coded by number: A = 1, B = 2.
Years fishing - How long have you held a lobster fishing license?
Boat age - Since built, not since bought?
Boat length - What is overall length of your lobster boat?
Engine type - Gasoline, diesel, outboard, absent?
Hauler type - Mechanical, hydraulic, absent?
Loran - Present, absent?
Radar - Present, absent?
Sounder - Present, absent?
Radio - C.B., VHF, both, none?
Number helpers (spring-fall) - How many full season helpers hired?
Maximum depth fished - What is shallowest depth gear set in?
Maximum depth fished - What is deepest depth gear set in?
Fishing area - From your wharf, how far do you travel, east, west, and offshore to fish traps?
License class - "A" or "B"?
Traps fished - How many traps do you actually fish, averaged over last 2-3 yr?
Number days fished spring-fall - How many days/season (average last 2-3 yr) did you fish when 80% or more of traps were hauled?
Trap data - Average recorded from actual observation and measurement of 10 traps.
Bait type - spring fall - Do you use salt, fresh, or combination of both types of bait?
Bait species - What are the main kinds of fish used for bait, in decreasing order?
Percent bait bought - What portion of your bait do you buy (average last 2-3 yr)?
Percent bait caught - What portion of your bait do you manage to obtain on your own (average last 2-3 yr)?

APPENDIX II:

Tables of characteristics of Category "B" licensed fishermen

Table 1. Lobster vessel construction material, mean age, mean length, and engine type power service for "B" licensed fishermen by LFD.

Lobster district	Vessel construction material (%)			X age of boats	X length of boats (m/ft.)	Power train %			
	Wood	Fibreglass	Aluminum			None	Gas inboard	Diesel inboard	Gas outboard
4B	80.0	13.3	6.7	12.7	6.3/20.7	6.7	40.0	6.7	46.7
5A	50.0	0.0	50.0	7.6	6.2/20.5	0	50.0	0.0	50.0
5B	100	0.0	0.0	6.0	4.9/16.0	0	0.0	0.0	100.0
6A[1]	-	-	-	-	- / -	0	-	-	-
6B	100	0.0	0.0	11.5	4.9/16.2	16.7	0.0	0.0	83.3
7A	100	0.0	0.0	3.0	7.5/24.5	0	0.0	0.0	50.0

[1]No "B" licensed fishermen interviewed in this district.

Table 2. Percentage of lobster boats equipped with accessories by type or combination of types for "B" licensed fishermen by LFD.

Lobster district	Trap hauler (% by type)			% of boats equipped with depth sounder	% of boats equipped with radar	% of boats equipped with Loran C	Boats equipped with radio (% by type)		
	Hand	Mechanical[1]	Hydraulic[2]				C.B.	V.H.F.	Both
4B	73.4	13.3	13.3	13.3	6.7	6.7	20.0	-	6.7
5A	75.0	25.0	0.0	25.0	-	-	50.0	-	-
5B	100.0	-	-	0.0	-	-	-	-	-
6A[3]	-	-	-	-	-	-	-	-	-
6B	83.3	16.7	0.0	16.7	-	-	-	-	-
7A	50.0	50.0	0.0	50.0	-	-	-	-	50.0

[1]Usually home made, constructed from automobile differential and axle, shaft driven from V-belt pully on main engine.
[2]Hydraulic pump driven by boat engine to hydraulic motor mounted directly on capstan.
[3]No "B" licensed fishermen interviewed in this district.

Table 3. Fishing experience and effort-related items for "B" licensed fishermen by LFD.

Lobster district	$\bar{X}$ # years fishing lobster	$\bar{X}$ # traps fished/ limit	$\bar{X}$ # days fished (Spring)	$\bar{X}$ # days fished (Fall)	$\bar{X}$ helpers (Spring)	$\bar{X}$ helpers (fall)	$\bar{X}$ fishing area[1] (mi^2/km^2)	$\bar{X}$ range of fishing depths(fm/m)	
								Min.	Max.
4B	28.2	58.0/75	22.0	9.3	0.1	0.1	8.4/21.5	2.2/ 4.0	14.1/25.7
5A[2]	33.0	52.5/75	34.3	-	0.3	-	4.0/10.2	4.3/ 7.7	13.3/24.3
5B[2]	32.0	75.0/75	35.0	-	0.0	-	3.0/ 7.7	3.0/ 5.5	12.0/21.9
6A[2,3]	-	-	-	-	-	-	-	-	-
6B[2]	36.5	46.8/83	30.5	-	0.2	-	2.7/ 6.9	3.0/ 6.9	12.3/22.5
7A[2]	32.0	82.5/83	44.0	-	0.5	-	16.0/40.9	2.0/40.9	15.5/28.3

[1]Fishing area is calculated from maximum distances travelled east, west, and offshore from home port to tend gear.
[2]There is no fall season in these districts.
[3]No "B" licensed fishermen interviewed in this district.

Table 4. Lobster trap construction parameters for "B" licensed fishermen by LFD.

Lobster district	% of fishermen using twine or combination of wire and twine with wood in trap construction		% of fishermen using 3, 4 or combination of 3 & 4 bow traps			% of fishermen using 1, 2, 3 or combination of 2 & 3 entance rings				X trap dimensions (cm)			X opening 1st lath space (mm)	X diameter of entrance rings (cm)
	Twine	Wire & Twine	3	4	3 & 4	1	2	3	2 & 3	L	W	H		
4B	93.3	6.7	100	-	-	-	100	-	-	87.7	66.0	37.6	31.6	13.4
5A	100	-	100	-	-	-	100	-	-	81.0	64.0	40.0	30.0	12.5
5B	100	-	100	-	-	-	100	-	-	-	-	-	-	-
6A[1]	-	-	-	-	-	-	100	-	-	-	-	-	-	-
6B	100	-	100	-	-	-	100	-	-	80.4	64.6	38.0	26.6	11.9
7A	50.0	50.0	100	-	-	-	100	-	-	-	-	-	-	-

[1]No "B" licensed fishermen interviewed in this district.

Table 5. Information on bait for "B" licensed fishermen.

Lobster district	Order of species preference	% of fishermen using bait types						$\bar{x}$ % of total caught
		Spring			Fall			
		Salt	Fresh	Both	Salt	Fresh	Both	
4B	[1]Mackerel [2]Other [3]Gaspereaux	-	71.4	28.6	-	56.9	43.1	39.0
5A[1]	[1]Mackerel [2]No pref [3]No pref	-	50.0	50.0	-	-	-	60.0
5B[1]	[1]Herring [2]No pref [3]No pref	-	-	100.0	-	-	-	50.0
6A[1] [2]	[1]- [2]- [3]-	-	-	-	-	-	-	-
6B[1]	[1]Herring [2]Mackerel [3]No pref	-	16.7	83.3	-	-	-	58.3
7A[1]	[1]Other [2]No pref [3]No pref	50.0	0.0	50.0	-	-	-	30.0

[1]There is no fall season in these districts.
[2]No "B" licensed fishermen interviewed in this district.